REMARKS

Claims 1 to 9 and 11 as set forth in Appendix I of this paper are now pending in this case. Claim 10 has been canceled, Claims 1 to 6 and 9 have been amended, and Claim 11 has been added as indicated.

Accordingly, Applicants have revised the wording of the claims to avoid expressions such as *"hetaryl"*, *"among"*, *"may be"*, *"can"* and *"if desired"*. Additionally, applicants' have clarified the definition of A^1 to A^3 to further bring out that the 5- to 8-membered heterocycle which is formed by those moieties together with the phosphorus and the oxygen atoms depicted in the formulae does not contain hetero atom ring members beyond the phosphorus atom and the oxygen atom. Additionally, applicants have deleted the reference to *"the hydrocyanation catalyst"* and *"the hydrocyanation conditions"* in Claim 9, and have added a new Claim 11 which depends upon Claim 8 and is otherwise drawn to the deleted subject matter. No new matter has been added.

In light of the foregoing and the attached it is respectfully requested that the rejection of Claim 10 under 35 U.S.C. §101, 102(b) and 112, ¶2, be withdrawn. Favorable action is solicited.

Applicants have also revised the abstract to include a representation of the formulae of the phosphinamidite ligands as suggested by the Examiner. Applicants have, in these formulae, adopted the Examiner's suggestion to represent the X moieties by "hoops", and have shortened the definition of the moieties significantly to stay within the limits of the space allotted for the abstract. Withdrawal of the Examiner's objection to the abstract is respectfully solicited.

The Examiner has rejected Claim 8 under 35 U.S.C. §112, ¶1, for relating to subject matter which is insufficiently enabled by the information provided in the application. More particularly, the Examiner argues that applicants' disclosure of the invention *"contains only a vague hint of the use of the present catalyst compound in the hydrocyanation of any substrate"*.

It is respectfully submitted that applicants' invention provides for a catalyst which is adapted to be employed in a hydrocyanation process which is well known in the art. It is well settled that a patent -and correspondingly the application on which the patent is based- need not teach, and preferably omits, what is well known in

the art[1]. Since the applicants' invention does not pertain to particulars of the hydrocyanation process which go beyond the nature of the catalyst which is employed, the omission of such particulars of the hydrocyanation process cannot reasonably constitute an omission which effects the enablement within the meaning of Section 112, ¶1. Favorable reconsideration of the Examiner's position and withdrawal of the respective rejection is respectfully solicited.

The Examiner has rejected Claims 1 to 10 under 35 U.S.C. §112, ¶2, for numerous reasons. Inter alia, the Examiner criticized in this context expressions such as *"hetaryl"*, *"among"*, *"may be"*, *"can"* and *"if desired"*. Applicants have, in their amendment, essentially adopted the Examiner's suggestions for obviating those issues under Section 112, ¶2. Applicants have also removed the to *"the hydrocyanation catalyst"* and *"the hydrocyanation conditions"* in Claim 9 which lacked antecedent basis in Claim 7.

The Examiner further criticized the designation of formulae by a combination of Roman and Arabic numerals and suggested that the Roman numerals be removed. On the one hand, it is respectfully noted that the application inter alia distinguishes formulae I.1 and II.1. If the roman numerals were removed, all of applicants' formulae would need to be renumbered throughout the application because the change suggested by the Examiner would otherwise hinder rather than improve the clarity of the application. On the other hand, it is applicants' opinion that the current designation of the formulae does not give rise to indefiniteness of the claims. The test of definiteness is whether one skilled in the art would understand the bounds of the claim when reading it in the light of the supporting specification[2], and the designation of the formulae is clearly not a factor which has an impact on the understanding of the scope of the claims.

The same applies mutatis mutandis to the Examiner's suggestion to replace X^1 to X^3 in applicants' formulae by "hoops". Applicants' appreciate the Examiner's suggestion in as much as the "hoops" representation -as for example used by applicants in the revised abstract-

1) In re Buchner, 929 F.2d 660, 661, 18 USPQ2d 1331, 1332 (CAFC 1991); Hybritech, Inc. v. Monoclonal Antibodies, Inc., 802 F.2d 1367, 1384, 231 USPQ 81, 94 (CAFC 1986), cert. denied, 480 U.S. 947 (1987); and Lindemann Maschinenfabrik GMBH v. American Hoist & Derrick Co., 730 F.2d 1452, 1463, 221 USPQ 481, 489 (CAFC 1984). Note also MPEP §2164.01

2) Morton Int. Inc. v. Cardinal Chem. Co., 5 F.3d 1464, 28 USPQ2d 1190 (CAFC 1993); Orthokinetics Inc. v. Safety Travel Chairs, Inc., 806 F.2d 1565, 1 USPQ2d 1081 (CAFC 1986)

provides more information in the formulae themselves. The respective information is, however, equally provided by the definition of X^1 to X^3. A person of ordinary skill who reads the claims in light of the supporting disclosure would, therefore, not gain additional information pertaining to the metes and bounds of applicants' claims if the formulae were changed. Since the manner in which X^1 to X^3 are represented in the formulae has no impact on the clarity of the metes and bound of applicants' claims, the current representation of the formulae is not deemed to give rise to indefiniteness of the claims within the meaning of Section 112, ¶2.

The Examiner further criticized that applicants use the designations "B" and "Y" for substructures in their formulae arguing that a person of ordinary skill in the art would understand the formulae to refer to boron and yttrium[3]. Claims are addressed to the person of ordinary skill in the particular art, and compliance with Section 112 must be adjudged from that perspective, not in a vacuum. It is always possible to theorize some combinations of circumstances which would render a claimed composition or method inoperative, but the art-skilled would assuredly not choose such a combination[4]. Moreover, expressions which are used in a claim cannot be read in a vacuum so as to pervert the clear and unambiguous meaning of the claim as a whole[5]. It is the claim as a whole which has to have a clear and definite meaning to meet the requirements of Section 112, ¶2, and not an expression which is used in the claim when taken out of context[6]. A person of ordinary skill in the art who considers each of applicants' claims as a whole and in light of the supporting disclosure has no reason to read "B" as boron, "Y" as yttrium or, for that matter, "D" as deuterium.

In light of the foregoing and the attached it is therefore respectfully requested that the rejection of Claims 1 to 10 under Section 112, ¶2, be withdrawn. Favorable action is solicited.

It is further respectfully requested that the rejection of Claim 10 under Section 101 be withdrawn since applicants have canceled Claim 10.

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3) Applicants also use the designation "D" which, under the rationale of the Examiner, would have to be understood as deuterium.

4) Ex parte Cole et al., 223 USPQ 94 (POBA 1983).

5) Price v. Vandenburg v. Bailey, 174 USPQ 42, 44 (BPI 1971).

6) Standard Oil Co. v. American Cyanamid Co., 774 F.2d 448, 227 USPQ 293 (CAFC 1985)

The Examiner has rejected Claims 1 to 7 and 9 under 35 U.S.C. §102(b) as being anticipated by the disclosure of ***van Rooy et al.*** **(Recl. Trav. Chim. Pays-Bas.,** *115, 492-498 (1996)*) and by the disclosure of ***Wissing et al.*** **(WO 96/16923)**. Both of the references provide for phosphoramidites wherein the phosphor is part of a heterocycle containing the phosphorus atom in an O-P-***N*** or an O-P-***O*** moiety.

In contrast to the teachings of the referenced prior art, applicants' invention requires that the phosphorus atom is bonded within the ring to an oxygen atom and to a carbon atom, that is, the phosphorus atom is part of an O-P-*C* ring moiety.

Anticipation under Section 102 can be found only if a reference shows exactly what is claimed[7]. The test for anticipation is one of identity, the identical invention must be shown in the reference in as complete detail as is contained in the claim[8]. In fact, the Federal Circuit has stated that it is error to treat claims as a catalog of separate parts, in disregard of the part-to-part relationships set forth in the claims that give those claims their meaning[9].

As shown above, the structure of applicants' phosphoramidites is clearly distinguished from the prior art structures, and the referenced prior art cannot be considered to identically describe applicants' invention. It is therefore respectfully requested that the Rejections under Section 102(b) be withdrawn. Favorable action is solicited.

For completeness sake it is further respectfully submitted that the referenced prior art, taken alone, taken in combination, or one taken in view of the other, is also deemed to fall short from rendering the subject matter of applicants' invention obvious within the meaning of Section 103(a). One of the basic criteria which has to be met to establish obviousness under 35 U.S.C. §103(a) is that the prior art reference or the combined references must teach or suggest all of the claim limitations, and the teaching or suggestion to make the claimed combination must be found in the prior art and cannot be

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7) For example Titanium Metals Corp. v. Banner, 778 F.2d 775, 227 USPQ 773 (CAFC 1985); In re Marshall 577 F.2d 301, 198 USPQ 344 (CCPA 1978); In re Kalm 378 F.2d 959, 154 USPQ 10 (CCPA 1967).

8) For example Richardson v. Suzuki Motor Co., 868 F.2d 1226, 9 USPQ2d 1913 (CAFC 1989).

9) For example Lindemann Maschinenfabrik v. American Hoist & Derrick Co., 730 F.2d 1452, 221 USPQ 481 (CAFC 1984).

based on applicants' disclosure[10]. Neither one of the referenced teachings suggests or implies structures wherein the phosphorus atom is incorporated into a ring as part of an O-P-C moiety as required by applicants. The references, alone or in combination, therefore fail to teach or suggest all of the limitations which characterize applicants' invention and therefore fail to establish obviousness under 35 U.S.C. §103(a). Favorable action is respectfully solicited.

REQUEST FOR EXTENSION OF TIME:

It is respectfully requested that a *one* month extension of time be granted in this case. A check for the *$110.00* fee is attached.

Please charge any shortage in fees due in connection with the filing of this paper, including Extension of Time fees, to Deposit Account No. 11.0345. Please credit any excess fees to such deposit account.

Respectfully submitted,
KEIL & WEINKAUF

/HBKeil

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Washington, D.C. 20036
(202) 659-0100

Encl.: THE LISTING OF CLAIMS (Appendix I)
THE CHANGE(S) IN THE ABSTRACT (Appendix II)

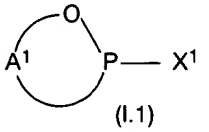
HBK/BAS

10) In re Vaeck, 947 F.2d 488, 20 USPQ2d 1438, 1442 (CAFC 1991)

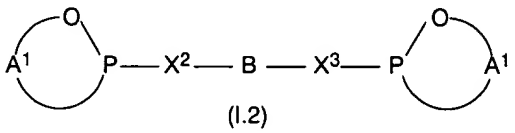
APPENDIX I:

THE LISTING OF CLAIMS (version with markings):

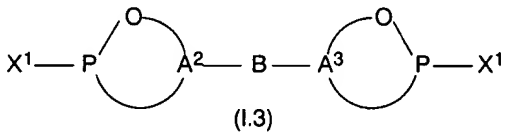
1. (*currently amended*) A catalyst comprising at least one complex of a metal of transition group VIII comprising at least one monodentate, bidentate or multidentate phosphinamidite ligand of the formulae I.1, I.2 and/or I.3



(I.1)



(I.2)



(I.3)

where

A^1 represents carbon ring members which, together with the phosphorus atom and the oxygen atom to which it is bound, form a 5- to 8-membered heterocycle which optionally has ~~onto which~~ one, two or three fused-on cycloalkyl, aryl and/or ~~hetaryl~~ heteroaryl groups ~~may be fused~~, where each of the fused-on groups ~~may each bear~~ optionally carries, independently of one another, one, two or three substituents selected from ~~among~~ the group consisting of alkyl, alkoxy, halogen, nitro, cyano, carboxyl and carboxylate,

A^2 and A^3 are, independently of one another, carbon ring members which are part of a heterocycle as defined for A^1 which is substituted by B,

X^1 is a 5- to 8-membered heterocycle which contains ~~at least one~~ a nitrogen atom bound directly to the phosphorus atom, where the heterocycle ~~may additionally contain~~ optionally contains one or two additional heteroatom(s) selected from ~~among~~ the group consisting of N, O and S, and/or has one, two or three fused-on cycloalkyl, aryl and/or ~~hetaryl~~ heteroaryl groups ~~may be fused onto the heterocycle~~, where the heterocycle and/or each of the fused-on groups ~~may each bear~~ optionally carries, independently of one another, one, two or three substituents selected from ~~among~~ the group consisting of alkyl, cycloalkyl, aryl, alkoxy, cycloalkoxy, aryloxy, acyl, halogen, trifluoromethyl, nitro, cyano, carboxyl, carboxylate, alkoxycarbonyl

and NE^1E^2, where E^1 and E^2 ~~may be~~ are identical or different and are each alkyl, cycloalkyl or aryl,

X^2 and X^3 are, independently of one another, a heterocycle as defined for X^1 which is substituted by B,

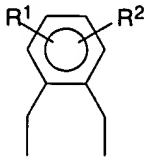
B is either a carbon-carbon single bond or a divalent bridging group,

or salts or mixtures thereof.

2. (*currently amended*) A catalyst as claimed in claim 1, wherein B is a bridging group of the formula -D-, -(CO)-D-(CO)- or -(CO)-(CO)-, in which

D is a C_1-C_{10}-alkylene bridge which ~~may have~~ optionally has one, two, three or four double bonds and/or ~~bear~~ carries one, two, three or four substituents selected from ~~among~~ the group consisting of alkyl, alkoxy, halogen, nitro, cyano, carboxyl, carboxylate, cycloalkyl and aryl, where the aryl substituent ~~may additionally bear~~ in turn optionally carries one, two or three substituents selected from ~~among~~ the group consisting of alkyl, alkoxy, halogen, trifluoromethyl, nitro, alkoxycarbonyl [[~~or~~]] and cyano, and/or the alkylene bridge D ~~may be~~ is optionally interrupted by one, two or three nonadjacent, substituted or unsubstituted heteroatoms, and/or the alkylene bridge D ~~may have~~ optionally has one, two or three fused-on aryl and/or ~~hetaryl~~ heteroaryl groups ~~fused onto it~~, where the fused-on aryl and ~~hetaryl~~ heteroaryl groups ~~may each bear~~ optionally carry one, two or three substituents selected from ~~among~~ the group consisting of alkyl, cycloalkyl, aryl, alkoxy, cycloalkoxy, aryloxy, aryl, halogen, trifluoromethyl, nitro, cyano, carboxyl, alkoxycarbonyl and NE^1E^2, where E^1 and E^2 ~~may be~~ are identical or different and are each alkyl, cycloalkyl or aryl.

3. (*currently amended*) A catalyst as claimed in claim 2, wherein D is a radical of the formula II.1, II.2, II.3, II,4 or II.5



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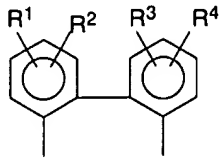

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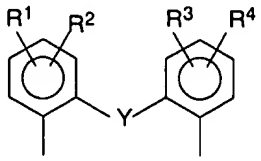

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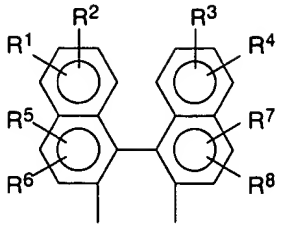

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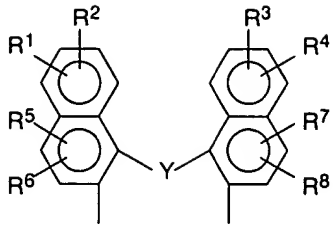


(II.5)

where

Y is O, S[[$_T$]] or NR^9, where

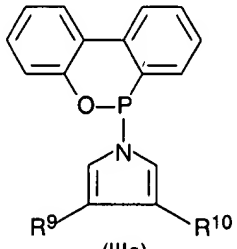
R^9 is alkyl, cycloalkyl or aryl,

or Y is a C_1-C_3-alkylene bridge which ~~may have~~ optionally has a double bond and/or an alkyl, cycloalkyl[[-]] or aryl substituent, where the aryl substituent ~~may bear~~ in turn optionally carries one, two or three substituents selected from ~~among~~ the group consisting of alkyl, alkoxy, halogen, trifluoromethyl, nitro, alkoxycarbonyl and cyano,

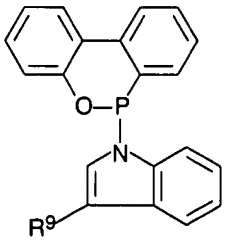
or Y is a C_2-C_3-alkylene bridge which is interrupted by O, S or NR^9,

R^1, ~~R^2, R^3, R^4, R^5, R^6,~~ R^2, R^3, R^4, R^5, R^6, R^7 and R^8 are, independently of one another hydrogen, alkyl, cycloalkyl, aryl, alkoxy, halogen, trifluoromethyl, nitro, alkoxycarbonyl or cyano.

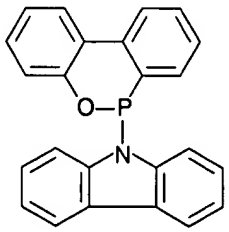
4. (*currently amended*) A catalyst as claimed in claim 1, wherein the phosphinamidite ligand is selected from ~~among~~ the group consisting of ligands of the formulae IIIa to IIIi



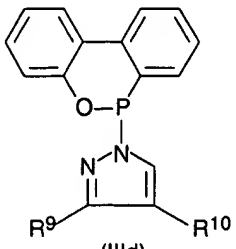
(IIIa)



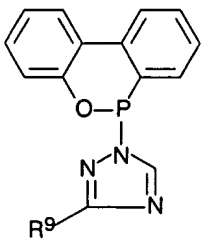
(IIIb)



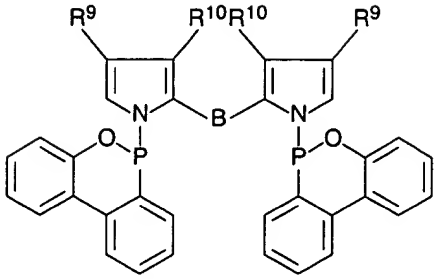
(IIIc)



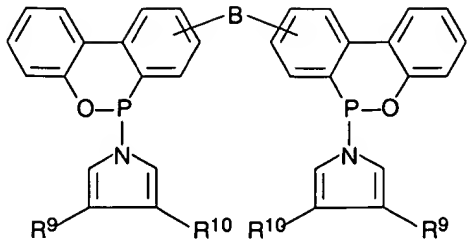
(IIId)



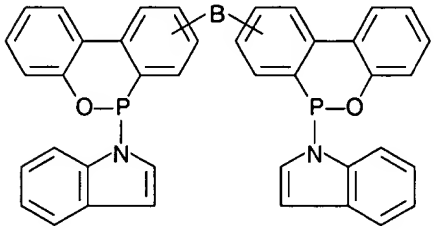
(IIIe)



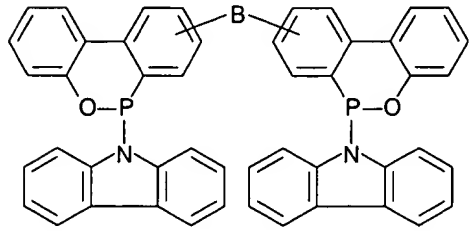
(IIIf)



(IIIg)



(IIIh)



(IIIi)

where

R^9 and R^{10} are, independently of one another, hydrogen, methyl, ethyl or trifluoromethyl,

R^{11} is hydrogen or $COOC_2H_5$,

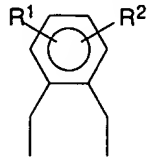
B is CH_2, $C(CH_3)_2$, (CO)-(CO) or (CO)-D-(CO),

where B in the formulae IIIg, IIIh and IIIi ~~can~~ is in each case ~~be~~ bound ~~in~~ to the o,o positions, m,m positions or p,p positions relative to the phosphorus atoms, and

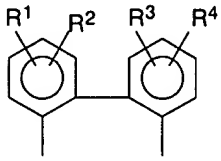
D is a C_1-C_{10}-alkylene bridge which ~~may have~~ optionally has one, two, three or four double bonds and/or ~~bear~~ carries one, two, three or four substituents selected from ~~among~~ the group consisting of alkyl, alkoxy, halogen, nitro, cyano, carboxyl, carboxylate, cycloalkyl and aryl, where the aryl substituent ~~may additionally bear~~ in turn optionally carries one, two or three substituents selected from ~~among~~ the group consisting of alkyl, alkoxy, halogen, trifluoromethyl, nitro, alkoxycarbonyl [[~~or~~]] and cyano, and/or the alkylene bridge D ~~may be~~ is optionally interrupted by one, two or three nonadjacent, substituted or unsubstituted heteroatoms, and/or the alkylene bridge D ~~may have~~ optionally has one, two or three fused-on aryl and/or ~~hetaryl~~ heteroaryl groups ~~fused onto it~~, where the fused-on aryl and ~~hetaryl~~ heteroaryl groups ~~may each bear~~ optionally carry one, two or three substituents selected from ~~among~~ the group consisting of alkyl, cycloalkyl, aryl, alkoxy, cycloalkoxy, aryloxy, aryl, halogen, trifluoromethyl, nitro,

cyano, carboxyl, alkoxycarbonyl and NE^1E^2, where E^1 and E^2 ~~may be~~ are identical or different and are each alkyl, cycloalkyl or aryl, or

D is a radical of the formula II.1, II.2, II.3, II,4 or II.5



(II.1)



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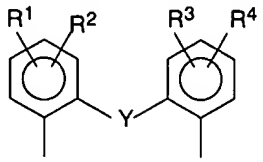

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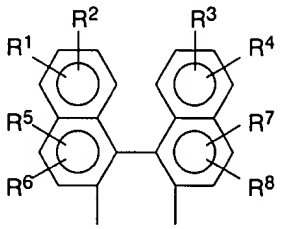

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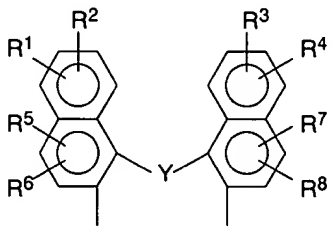


(II.5)

where

Y is O, S[[$_T$]] or NR^9, where

R^9 is alkyl, cycloalkyl or aryl,

or Y is a C_1-C_3-alkylene bridge which ~~may have~~ optionally has a double bond and/or an alkyl, cycloalkyl[[-]] or aryl substituent, where the aryl substituent ~~may bear~~ in turn optionally carries one, two or three substituents selected from ~~among~~ the group consisting of alkyl, alkoxy, halogen, trifluoromethyl, nitro, alkoxycarbonyl and cyano,

or Y is a C_2-C_3-alkylene bridge which is interrupted by O, S or NR^9,

R^1, R^2, R^3, R^4, R^5, R^6, R^7 and R^8 are, independently of one another hydrogen, alkyl, cycloalkyl, aryl, alkoxy, halogen, trifluoromethyl, nitro, alkoxycarbonyl or cyano.

5. (*currently amended*) A catalyst as claimed in claim 1, wherein the metal of transition group VIII is selected from ~~among~~ the group consisting of cobalt, ruthenium, iridium, rhodium, nickel, palladium and platinum.

6. (*currently amended*) A catalyst as claimed in claim 1 which further comprises at least one further ligand selected from ~~among~~ the group consisting of halides, amines, carboxylates, acetylacetonate, arylsulfonates or alkylsulfonates, hydride, CO, olefins, dienes, cycloolefins, nitriles, N-containing heterocycles, aro-

matics and heteroaromatics, ethers, PF_3 and monodentate, bidentate and multidentate phosphine, phosphinite, phosphonite and phosphite ligands.

7. (*previously presented*) A process for the hydroformylation of compounds which contain at least one ethylenically unsaturated double bond by reaction with carbon monoxide and hydrogen in the presence of a hydroformylation catalyst, wherein the hydroformylation catalyst used is a catalyst as claimed in claim 1.

8. (*previously presented*) A process for the hydrocyanation of compounds containing at least one ethylenically unsaturated double bond by reaction with hydrogen cyanide in the presence of a hydrocyanation catalyst, wherein the hydrocyanation catalyst used is a catalyst as claimed in claim 1.

9. (*currently amended*) A process as claimed in claim 7, wherein the hydroformylation catalyst ~~or the hydrocyanation catalyst~~ is prepared in situ by reacting at least one phosphinamidite ligand, a compound or a complex of a metal of transition group VIII and~~, if desired,~~ optionally an activator in an inert solvent under the hydroformylation conditions ~~or the hydrocyanation conditions~~.

10. (*canceled*)

11. (*new*) A process as claimed in claim 8, wherein the the hydrocyanation catalyst is prepared in situ by reacting at least one phosphinamidite ligand, a compound or a complex of a metal of transition group VIII and optionally an activator in an inert solvent under the hydrocyanation conditions.

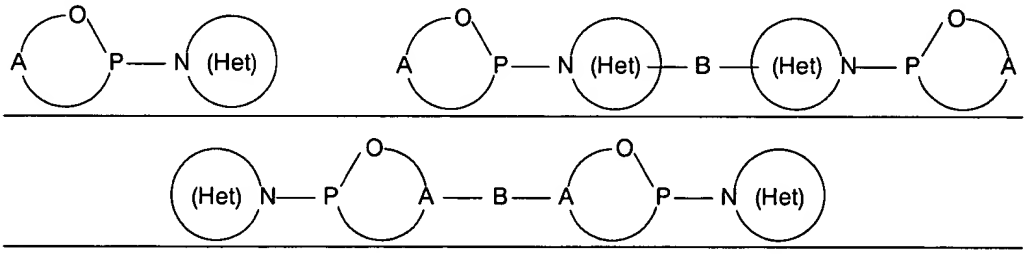
APPENDIX II:

THE CHANGE(S) IN THE ABSTRACT:

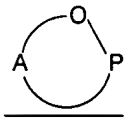
Catalyst comprising a complex of a metal of transition group VIII based on a phosphinamidite ligand

Abstract

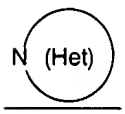
A catalyst comprising at least one complex of a metal of transition group VIII comprising at least one monodentate, bidentate or multidentate phosphinamidite ligand in which the phosphorus atom and the oxygen atom of the phosphinamidite group form part of a 5- to 8-membered heterocycle can be used for the hydroformylation and hydrocyanation of compounds containing at least one ethylenically unsaturated double bond. The phosphinamidite ligand is, for example, represented by the following formulae



wherein



represents an optionally substituted 5- to 8-membered heterocycle wherein A represents carbon ring members;



represents an optionally substituted N-bonded heterocycle wherein (Het) indicates optional ring heteroatoms in addition to the N; and

B is a carbon-carbon single bond or a divalent bridging group.